wards to the olfactory lobes, the smaller passing backwards. They correspond in distribution to the two divisions of the anterior commissure in the mammal. Does the upper bundle, then, represent the corpus callosum? When we follow the distribution

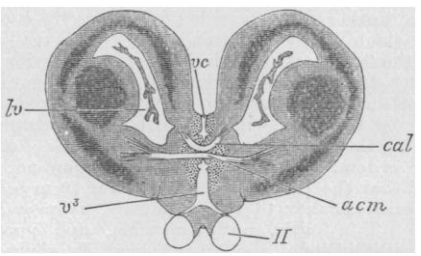

FIG. 3. — Transverse section of the fore-brain of the turtle in the plane of the cerebral commisures.

of its fibres to the upper inner cell-area of the hemispheres, this question seems clearly answered in the affirmative. But here arises a difficulty; this bundle lies below the foramen of Monro, and its fibres pass upwards *behind* the foramen, and then forwards above it. This is exactly the reverse of their position in the mammalian brain; but an explanation is found in the fact that the frog's brain retains many fish characters, and, among them, a large ventricle (the ventriculus communis) common to the two hemispheres, with the cerebral commissures lying in its floor. The brain of the turtle gives us a step nearer the mammalian type; for here, as in the mammal, the cerebral commissures lie in the front wall of the common ventricle, and the callosal bundle passes upwards in *front* of the foramen of Monro, and its fibres spread like rays over the entire inner wall of the hemispheres. Removing all further doubt that this bundle is homologous with the corpus callosum, is the fact that connected with it, as in the mammals' brain, are fibres passing backwards and downwards into a region which corresponds with the

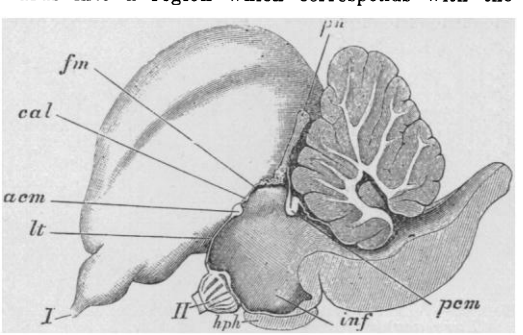

FIG. 4. — A vertical section of the brain of the duck (*Anas boschas*).

mammalian hippocampus. These fibres are usually described as the commissural portion of the fornix. The snake's brain (Tropidonotus) gives us a higher step, for, although the corpus callosum is a less distinct bundle, fibres are observed descending in the lamina terminalis, which in their relations closely resemble the columns of the fornix, — another structure which has been supposed to be peculiar to the mammals. In this brain also the olfactory and temporal divisions of the lower bundle have precisely the same relations as in the mammalian anterior commissure, demonstrating beyond a doubt that the lower bundle represents the entire anterior commissure, and not merely its temporal division, as Stieda and Mihalkovics contend. Upon drawing apart the hemispheres of the freshly removed brain of a duck, we observe a delicate thread of fibres slightly above a large and distinct lower commissure. The former, in transverse section (fig. 5), is seen passing directly upwards into the inner wall of the hemispheres, and below it is a powerful transverse commissure. We cannot fail to recognize that these two bundles are essentially similar in distribution and position to those in the turtle, and that the upper one is a rudiment of the corpus callosum.

Here is seen an apparent anomaly. In the frog's brain, the proportion of the corpus callosum to the anterior commissure is as 2 to 1; in the turtle it is about 5 to 4, while in the birds it is about 1 to 6. Thus, with an ascending scale of intelligence, we find a diminishing corpus callosum, a relation the reverse of that which obtains in the mammals. The

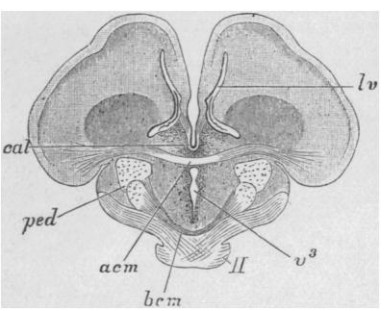

FIG. 5. — A transverse section of the duck's brain through the commissures.

explanation of this is probably that in the Sauropsida generally the inner wall of the hemispheres is thin, and in the birds it is reduced to a mere sheet of nerve-tissue, and this reduction of distribution area has effected a reduction of the commissure. In all these animals the united commissures are even smaller in proportion to the hemispheres than they are in the monotremes.

HENRY F. OSBORN.

A brilliant meteor.

You may think worthy to record the following memoranda of an unusually large and brilliant meteor, reported by Mr. E. Stockin of Watertown, Mass., and seen from that place on Sunday evening, Aug. 8. Time, about 8.45 P. M. Direction, north-east to east. The attention of both Mr. and Mrs. Stockin was first called to the meteor by the flash, which illuminated surrounding objects. On turning, they saw the meteor, apparently about thirty degrees above the horizon. It was of a bright red color, of about one-fourth the size of the moon, occupying five or six seconds in its descent, disappearing behind some buildings while still brilliant, and leaving a trail of brilliantly colored sparks, and subsequently a white streak visible some seconds. The exact direction of the meteor from the observer could be ascertained, if desirable, by means of positions noted at the time.

C. H. AMES.

Boston, Mass.